

ALCOA PRIMARY METALS INTALCO WORKS
PROPOSED AIR OPERATING PERMIT
RESPONSE TO COMMENTS

Public Notice for the Alcoa Primary Metals Intalco Works (Intalco) proposed air operating permit (AOP) was published on October 29, 2003 and the public comment period ended on December 02, 2003. RE Sources, Intalco, and the Aluminum Environmental Group (AEG) provided comments to Ecology regarding the proposed AOP. Additional comments were received from Ecology's internal review. This document is the Department of Ecology's response to all of those comments. The comments are presented in *italic* print followed by Ecology's response.

Ecology wrote the Response to Comments, which follows below, based on the comments received during the public comment period. The Response to Comments was submitted along with Intalco's AOP and related documents to EPA on December 23, 2003. EPA provided no comments after a 45 day review ending February 12, 2004. Ecology has not revised the Response to Comments. Ecology did make some revisions to the Consolidated Order and to the AOP based upon additional internal review. These revisions are discussed in the attachment titled "Ecology Changes to the Consolidated Order and to the AOP Made After the Public Comment Period (ending December 2, 2003) and EPA's 45-day Review (ending February 12, 2004)".

RE SOURCES COMMENTS

1. Air Operating Permit format and accessibility:

The Air Operating Permit format seems very obtuse and makes it very difficult for the reader to actually know what is being emitted by the facility, and the previous compliance record of the facility. In order to see what is actually being emitted by the facility as a whole, one needs to either obtain the Intalco application, which is not available electronically or at local libraries, or one needs to refer to the Toxic Release Inventory. There are some problems with both of these methods and in using these methods together for comparison.

Here are some specific comments based on the accessibility/ understandability of the data-

- a.) Intalco and Ecology officials have been very helpful in being available to help explain the AOP and in making requested data available in the easiest manner possible. The courtesy and approachability of DOE and Intalco officials, notwithstanding, the data showing actual emissions in a clear and*

understandable format needs to be readily accessible to the general public through electronic means or at a library.

Ecology's Response: Comment noted. In the future, Ecology will request that the permittee provide copies of the AOP application to the local libraries and electronically if requested.

b.) Table B1 in Intalco's application nearly satisfies the requirement of showing the reader exactly what has been emitted in years past. However, this data was only available by specific request. Table B-1's title is "Pollutant Emission Summary Actual Annual Emissions at 1992 Production Rate". I believe that this is a typographical error and should indicate a 2002 production rate.

Ecology's Response: The application that you reviewed is the updated version of the original Intalco AOP application. Intalco submitted the updated AOP application to reflect the information and data that was used to develop the proposed AOP. The heading on Table B-1 in the updated AOP Application is incorrect. The heading has been changed to POLLUTANT EMISSION SUMMARY, 1999–2000. The data in Table B-1 is based on emission rates determined in the 1999-2000 period and ratioed for 720 operating (full production) pots. Data from 1999 and 2000 provide the two years with the most representative data. Production rates after 2000 represent years when operations were either partially or totally curtailed. Data from the years 1999 and 2000 also represents changes that were made in operations in order to better control fluoride emissions to assure compliance with the Primary MACT standard (NESHAPS subpart LL) that became effective in October of 1999.

c.) It would be very helpful if AOP data were presented in a manner similar to that in NPDES permits, for understandability. This would mean that there would be tables showing a comparison of actual and allowed emissions, and a comparison of the past permit with the present permit. In addition, a history of violations and a reporting of studies that have been completed since the last permit cycle should be included.

Ecology's Response: The proposed AOP is Intalco's first AOP so there is no previous permit with which to compare. Up until the time that the AOP is issued, pollutants emitted from Intalco operations are regulated either under an approval order for new or modified sources (WAC 173-400) or under the regulations in WAC 173-400, -401, 415, 460, and -481. The purpose of the AOP is to compile all of the applicable requirements from Intalco's approval orders and the applicable requirements in WAC 173-400, -401, 415, 460, and -481 to which Intalco is subject into a single document. The content of the AOP is limited to just the enforceable requirements to which Intalco is subject and does not include any supporting information. All information supporting the requirements of the AOP is provided in the AOP Application and in the Support Document. The Intalco AOP Application provided the information necessary to develop

the AOP. The application contains a breakdown, for each of Intalco's emission units, of all of the pollutants that have the potential to be emitted and an estimate of the annual emission rate for each of those pollutants based on either source test data or on emission factors. The application contains the table referred to in 1.b) above which summarizes the annual emission estimates for each pollutant for each of the respective emission units. The Support Document provides a discussion of the emission limit, historical source test data, margin of compliance, and an estimate of the annual emission rate for each emission unit subject to an emission limit.

The information you are interested in would best fit in the Support Document (like the Fact Sheet for NPDES permits). Ecology will consider including the information requested in your comment in the Support Document for future permits.

d.) *The TRI and Table B-1 do not mesh well together. This is a detriment to the reader. Although there are two different agencies presenting this data, some effort should be made so that they can be understood together. The 2001 and 2000 TRI data show that 21,460 (~11 tons) and 78199 (~39 tons) pounds of HF were emitted, but the 2002 DOE data show that 170 tons were emitted. Does the EPA data only estimate gaseous HF???? The 2001 and 2000 TRI data show that 66,400 (~33 tons) and 480,000 (~240 tons) pounds of COS were emitted, and the 2002 DOE data show that 243 tons were emitted. Was the difference in 2000 and 2001 TRI data due to production differences? The TRI data shows PAH and the DOE data shows POM. In 2000 the TRI PAH levels were much higher than in 1997, 1998, or 1999, and were 16,000 pounds or 8 tons. What was going on operationally that these numbers increased? We can expect that POM numbers were increasing also.*

Ecology's Response: Intalco complies with the Toxic Release Inventory (TRI) reporting format prescribed by EPA. Emissions of pollutants from all sources are aggregated into categories of releases per the TRI reporting requirements. The emissions reported in TRI may be either measured or estimated from emission factors. The TRI requires that only gaseous fluoride (HF) be reported. The TRI represents actual emissions and the data in Table B-1 represents the maximum potential to emit for each individual source. Therefore, the reported values in the TRI database and in Table B-1 are not expected to match.

Intalco has had a wide range of production for the years 2000 through 2002. In 2000 Intalco produced over 300,000 tons of aluminum. In 2001 production was curtailed and annual production reached only 45,000 tons. In 2002 Intalco resumed production and produced 99,000 tons. The production of COS varies with both production and the amount of sulfur present in the coke used to manufacture the anodes for the smelting process.

Polycyclic aromatic hydrocarbons (PAH) are a family of dozens of compounds. In the PAH family, 21 specific polycyclic aromatic compounds (PAC) are reportable under the TRI. Polycyclic organic matter (POM) is another family of compounds that have the property of high solubility in hexane. POM can contain compounds that are not polycyclic. Therefore POM, PAC, and PAH are not synonymous and cannot be compared directly.

TRI guidance documents require that Intalco report annual releases using the best information known at the time of the report. Intalco has reported to Ecology that additional study of emissions and discharges conducted in 2000 resulted in implementing updated methods of estimating emissions. These new methods were used in the preparation of the 2000 TRI report reflecting higher releases. An example of these updated methods included improved vendor data on PACs present in soft pitch.

2. Fugitive Dust:

Condition H15 of the AOP has not been completed. The reader does not know under what conditions the Monitoring Plan will be approved. At the least, it seems that covering bins and carts containing light material should be required.

It has been stated that emissions from baghouses during cleaning cycles are of short duration and are not subject to opacity and PM10 regulations. I did not see any requirement for BMPs to be in place during cleaning. A short burst of increased opacity may emit a sizeable amount of pollutants into the air.

In relation to the clamshell operation, one wonders whether a simple refurbishment of the clamshell might be all that is in order. I believe a lip that tucks inside the edge of the clamshell would impede much of the dust that escapes during operation. Upon visiting the site to see the clamshell operation, I was heartened to see that much was being done to correct the problem. However, there still was quite a bit of emissions and a seeming reluctance to implement any other measures.

Ecology's Response:

WAC 173-401 requires that existing controls for fugitive emissions be considered reasonable available control technology (RACT) at the time the AOP is issued. Intalco originally submitted an Air Monitoring Plan (AMP) in 1991. Intalco is required to submit an updated AMP (per Condition H15) to address new regulations such as MACT, and new gapfilling requirements in the AOP (such as RACT requirements for controlling fugitive emissions). One of the gapfilling requirements to which the sources of fugitive dust are subject, is the requirement to identify (in the AMP) the RACT procedures used to control specific sources of fugitive dust. The AMP must be reviewed and approved by Ecology. If Ecology determines that those controls do not meet RACT, Ecology has the authority to issue an order requiring Intalco to conduct a RACT determination that is subject to Ecology's review and approval.

Regarding the comment about emissions from baghouses during cleaning cycles, Condition H1 requires Intalco to follow good air pollution control practices for all air pollution control equipment. Maintaining adequate flow to the baghouse is critical to reducing overall emissions. In order to maintain adequate flow, the filter bags in a baghouse must be periodically cleaned. This mechanical cleaning process occurs automatically as part of the control devices normal operation. The cleaning process is designed to minimize overall emissions by maintaining optimum capture of emissions from the source. Intalco has optimized the cleaning process in a manner that limits emissions to the greatest extent practicable.

Intalco has made considerable efforts to improve the performance of all components of the alumina ore unloading system. In addition, Intalco has advised Ecology that additional studies have been scheduled for 2004 to further reduce fugitive emissions from unloading operations on the dock. Ecology is continuing to monitor the use of the clamshell and is working with Intalco to further reduce fugitive emissions from ore unloading activities. Condition H11 of the AOP was revised to include restrictions on operating the clamshell under certain meteorological conditions. If after implementing all of these changes the unloading operations continue to be a problem, Ecology can issue an order requiring Intalco to conduct a RACT determination. This would include optimizing the design of the clamshell.

3. Emission Limits:

It is not always clear to me how emission limits are established. I see that the rules by WAC are followed, but I also see that the results of source tests are sometimes used as emission limits. If a source control technology is not functioning as well as it can, then its pollution emissions should not be used as the limits. It appears that there are very few incentives or directives given in order to ratchet down on toxic air emissions. Please address. One specific case of this is shown in condition A14 of the AOP. It states that the POM emission limit shall be the HIGHER of the two options..... In order for us to ratchet down on pollution, this must read the LOWER of the two options.

Ecology's Response:

Regarding your comment about source test results being used as emission limits see the discussion in Section 6 below.

Regarding your comment about Condition A14 (POM limit for the Pitch Fume Treatment System), the Primary MACT regulation 40CFR 63.843(b)(2) established that a dry coke scrubber (Intalco calls it a pitch fume treatment system (PFTS)) was the required treatment technology for paste production plants (identified as the green carbon process in the AOP). Under WAC 173-400, Ecology also required that this unit meet Best Available Control Technology (BACT) for a new source. Intalco submitted a Notice of Construction (NOC) Application requesting approval for the construction and operation

of the PFTS. In the NOC application, per the requirements of WAC 173-400, Intalco provided a BACT determination and estimates of the potential POM mass emission rate (of 0.54 pounds/hour) based on source tests from a similar unit. Ecology reviewed the NOC application and approved the construction and operation of the PFTS in Order No. DE00-AQIS-833. In that order, Ecology determined that the PFTS was BACT and established the 0.54 pounds POM/hour limit. The alternative emission limit was established to recognize that individual units at site specific locations can each operate differently so Ecology provided an allowance to establish different limits based on performance. Since startup of the source, emission tests have demonstrated that average POM emissions (0.28 pounds per hour or 1.2 tons per year) are 52% of the POM limit (0.54 pounds per hour or 2.36 tons per year) operating at full production. Intalco has elected not to conduct additional source tests to establish an alternative limit. The language regarding the source testing to establish an alternative limit was removed from the AOP.

Regarding your comment about ratcheting down toxic air emissions, WAC 173-460 is applicable only to new or modified sources of toxic emissions. Since the PFTS was a new source, Intalco was required to evaluate toxic emissions from the unit. Ecology also required Intalco (in Order DE00-AQIS-833) to run an air dispersion model of the measured PAH emissions from the PFTS to demonstrate compliance with the Ambient Acceptable Source Impact Level (ASIL) in WAC 173-460. Intalco determined that the maximum ambient air concentration of PAH outside Intalco property was 18 times lower than that of the ASIL for PAH. Existing emission units are not subject to the toxics rules unless the unit undergoes a modification or a RACT determination where the respective toxic emissions are determined to be pollutants of concern.

4. SO₂ Emission Limits:

It is stated that there will be no monitoring of SO₂ emissions because those emissions will not violate the standards. It is still important to know how much SO₂ is being emitted for modeling purposes, for Cherry Point and for the entire airshed

The calculation stated in Condition D16 may have an error in it. %S in the anode must be expressed as a decimal or must be multiplied by 1/100.

Ecology's Response:

Ecology will make the change by adding a factor of 0.01 to the equation.

Intalco performed over 800 sulfur dioxide source tests from 1988 to 1999. The monitoring data demonstrated compliance with the requirements of WAC-173-415-030(5)(b) and WAC 173-400. The data demonstrated that the average SO₂ concentration was 35 ppm in the potline dry scrubber stacks, 0.6 ppm in the roof scrubber stacks, and 13 ppm in the bake furnace scrubber stack. The maximum SO₂ concentration from any source was 300 ppm in the potline dry scrubber stack. Since the historical data demonstrates that Intalco has not exceeded either the 1000 ppm or the 60 pound/ton limits and that there is a large margin of compliance, Ecology has

determined that Intalco can use a mass balance calculation to determine the SO₂ emissions in the future.

Intalco has conducted SO₂ ambient air monitoring near the point of maximum impact since 1987. The SO₂ ambient monitoring data is reported to the Northwest Air Pollution Authority (NWAPA) on a monthly basis. The average SO₂ data reported to NWAPA is summarized in the table that follows and is compared to the respective Air Quality Standards. Intalco has never had an exceedance of the ambient SO₂ standards. Intalco modeled the ambient impact of SO₂ in 2002. The maximum ambient concentration indicated by the model was 971 µg/m³ over a one hour averaging period which is below the Washington SO₂ standard.

Averaging Period	Intalco Modeled SO ₂	SO ₂ NAAQS	SO ₂ WAAQS
1-hr Average Concentration (µg/m ³)	971.0		1,047
3-hr Average Concentration (µg/m ³)	873.9	1,300	
8-hr Average Concentration (µg/m ³)	284.1		
12-hr Average Concentration (µg/m ³)			
24-hr Average Concentration (µg/m ³)	132.6	365	262
8-month Average Concentration (µg/m ³)			
Annual Average Concentration (µg/m ³)	18.9	80	52

5. Connection of Air and Water Pollution and Permits:

Because Intalco is one facility, their air and water emissions are related. Because the laws governing air and water are discrete, air and water pollution are considered separate, yet they are not. What Intalco emits in the air has great potential to pollute the water, specifically if it is very soluble like HF or is a particulate.

Given the following facts, RE Sources and the North Sound Baykeeper respectfully ask that Ecology require Intalco to conduct further studies into how its air pollutants, specifically the PAH's and/ or POM components and HF impact water and sediment quality. We know the following: air pollution can pollute the water, the sediment at Intalco is already contaminated with PAH's, Cherry Point herring are in severe decline, herring are adversely affected by some PAH's , and Cherry Point is, at this point, of a high enough quality to be designated an aquatic reserve by DNR and a team of experts. Given this information, it is imperative that we examine the possible reasons for decline of the herring and that we protect this area as much as we can. Testing should include modeling studies that show the deposition and partitioning of the air pollutants, and show the actual composition of PAH's or POM being emitted. Without this data, we cannot rule out the possibility that Intalco's air emission are adversely affecting the biota, and specifically, the herring.

Ecology's Response: Ecology is very attentive to the herring issue and is committed to not allowing adverse environmental impacts to the water quality of the Strait of Georgia from operations at the Intalco facility. Ecology is currently drafting the NPDES permit renewal. Ecology is evaluating several options to determine how the alumina may affect water and sediment quality. The NPDES permit may contain a requirement to conduct additional sediment studies.

Federal MACT and Ecology BACT requirements in the AOP specifically regulate emissions of POMs. PAHs are a subcategory of POMs. Although MACT has no limits for PAHs there are other requirements in the AOP designed to keep Intalco in compliance such as the requirements to conduct POM source tests once every two years on the Pitch Fume Treatment System and annually on the Bake Oven Baghouse. At this time Ecology has no reason to believe that Intalco's air emissions are impacting the waters of the Strait of Georgia. Modeling studies that show the deposition and partitioning of the air pollutants that you are suggesting are intriguing but beyond the scope of the AOP.

6. Adequacy of source testing:

It does not appear that source testing is adequate. It is given that source testing is an expensive process. However, source testing is the only way the public knows with surety what is being emitted by the facility. Source testing should occur under a variety of operating conditions, and loads, so that the limitations of the equipment can be examined and an intelligent estimate of yearly emissions can be made.

In some cases only two source tests were conducted, but the reader is not told what year these were conducted. Surely, equipment function changes over time and even with high quality maintenance and inspections, equipment may not function the same in year 10 as it did in year 5 or year 1. Additionally, it seems unlikely that an accurate yearly estimate of emissions can be made on the basis of 2 source tests.

Given the paucity of source testing that has already been done and the fact that very few source tests actually are required by Ecology, I disagree that there should be an option to reduce monitoring frequency, as stated in Condition H6 in the AOP.

Specifically on units that can potentially emit more than 5 tons per year of PM10, this should not be an option.

Here are specific comments based on the source testing.

- a.) Process 2, discharge points 188, 189, 191- It appears that at the least, source tests should be conducted once every three- five years to ensure compliance. Safety limitations should not be used as a reason to not test for pollution emissions. It is Intalco's job, both to ensure the safety of its workers, and to monitor for its pollution.*
- b.) Process 2, discharge point 194, 232-- An emission factor is used here, yet a source test will be required every 5 years. Instead of using an emission factor, which may not be accurate for the specific unit being tested, why haven't source*

tests been instituted on the 5-year schedule already? This schedule should be instituted immediately.

- c.) *Process 6, discharge point 217— There is no information given on how the limit of 2.5 tons/year PM10 and other emissions were reached. Was it by source testing or by a emission factor. Please conduct source tests on a 3-5 year cycle for this unit.*

Ecology's Response to 6 a.), 6.b), and 6.c): Ecology determined the frequency of source testing based on EPA periodic monitoring guidance. The factors that Ecology considered in arriving at appropriate periodic monitoring were margin of compliance; necessity of add-on controls; variability of emissions over time; the type of controls, monitoring, and maintenance already in place; and technical and economic considerations. Each of these factors is discussed in detail in discussed in Section 4 of the AOP Support Document.

Approximately 90% of the actual particulate emissions from Intalco are emitted from the potline primary and secondary emission control system stacks. The primary and secondary emission control system stacks are systematically tested on a monthly basis. Of the remaining 10% of the particulate emissions, approximately 9% is emitted from numerous small and medium sized baghouses on various processes and material handling units throughout the facility, some of which are subject to the requirements of an order. Source testing requirements for these smaller control systems are less frequent than the source testing done on the potline emission control system because the emissions from each of these smaller sources are insignificant when compared to the amount of controlled emissions from the potline systems. The final 1% of the particulate emissions are emitted from the combustion of natural gas.

Source tests are very expensive. A typical source test costs \$2,500. Platforms and other safety equipment required to provide access to a stack costs up to \$50,000 for each test location. The potlines are intensively monitored on a consistent basis. Intalco currently conducts 416 source tests on the potline controls each year. The major environmental impact comes from potline emissions which is where Ecology wants Intalco to focus its resources. The impact of emissions from the smaller sources mentioned in your comments are very small compared to the potlines. In the event of a failure of any baghouse, including the smaller control devices, Intalco is required to take immediate corrective action to prevent environmental impacts.

In addition, The frequent and intensive functional integrity inspections, consistent operation and maintenance practices, and follow-up corrective actions required for every baghouse at the smelter provide a more stringent and preventive approach to maintaining compliance than source testing. Baghouses at Intalco that are properly operated and maintained produce no visible emissions and can meet the particulate matter (PM) grain loading standards. Traditionally, O & M compliance has been

demonstrated through observation of visible emissions in addition to conducting routine maintenance activities. Weekly inspection and documentation of operating and maintenance conditions improves the company's ability to identify and correct problems long before an emission standard is violated. Intalco will be required to take corrective action earlier than it would have if the permit relied solely on visible emission observation or stack testing to demonstrate compliance. Corrective action will be taken whenever visible emissions (or other observations from the FI inspections, such as excess vibration) are observed. Records of inspections and corrective actions will be maintained.

The emission factors used by Intalco to estimate emissions in the AOP application were based on source tests of analogous process units at another aluminum smelter. Use of emission factors is an accepted practice by EPA and Ecology.

Regarding your comment in 6.c about the discrepancies between the AOP support document and the application, Intalco has updated the application to reflect the information in the support document.

d.) *Process 6, discharge point 220a,b and 221 a, b- Please reconcile this difference. In the application, Table B1, PM10 emissions are estimated at 16 tons/ year, whereas Condition E16 in the Supporting Document estimates PM10 at 48Tons/year.*

Ecology's Response: The particulate emissions for emission points 220a,b and 221 a,b (MHD furnaces) are correctly estimated to 16 tons/year. The support document has been corrected to reflect the potential 16 tons/year emission rate.

e.) *Process 6, discharge point 315- There is a conflict in the material submitted. Condition E28 states that the PM10 emissions will be 0.16Tons/year, whereas Table B1 in the application states that 4.2 Tons will be emitted per year. Please reconcile this difference and source test once every 3-5 years if the larger number is accurate.*

Ecology's Response: Intalco has revised the AOP Application and Ecology has revised the AOP Support Document to reflect the potential estimated emission rate of 1.9 T/yr calculated using the average (0.00091 grains/dscf) of 9 source tests for the Dross and Silicon Storage Baghouse (emission unit #315). Because the large amount of historical data demonstrates that there is a wide margin of compliance, Intalco is not required to conduct source testing on this unit unless Ecology requests that Intalco conduct a source test.

f.) *Process 7, discharge point 208- Emission factors, in general, should not be used when testing can occur. Please institute source testing*

Ecology's Response: See Ecology's Response to 6 a.), 6.b), and 6.c) above.

g.) *Condition F19 in the Supporting Document – Alumina Silo #4 Truck loader baghouse stack is estimated to emit 0.95 Tons/ year PM 10 (?). No notation of this emission has been made in the application Table B1.*

Ecology's Response: Intalco has added a discussion of the potential emission rate estimate for source 274 (the Alumina Silo #4 Truck loader baghouse) to Appendix B of the AOP application and added the emissions from the unit to summary Table B-1.

INTALCO COMMENTS

1. *The authority for the 5% Opacity limit should be added to condition H3.*

Ecology's Response: Ecology revised Condition H3 to reflect both the 20% and 5% opacity limits by adding H3.a and H3.b respectively. The authority for the 20% opacity limit is WAC173-415-030(3) and the authority for the 5% opacity limit is Order 02AQIS-3967. Ecology also replaced the reference to "Condition H3" with "Condition H3.a" for emission units subject to the 20% opacity limit and with "Condition H3.b" for the emission units subject to the 5% opacity limit.

2. *Miscellaneous typographical errors.*

Intalco submitted a marked up copy of the AOP which identified miscellaneous typographical errors.

Ecology's Response: Ecology corrected the typographical errors in the AOP.

ALUMINUM ENVIRONMENTAL GROUP (AEG) COMMENTS

1. Deleted the Collection and Removal Efficiency Requirement from the AOP:

During the public comment period, the Aluminum Environmental Group (AEG) representing Washington's aluminum facilities met with Ecology. At that meeting the AEG requested that Ecology reevaluate whether the requirement to conduct collection and removal efficiency (C&RE) testing in WAC 173-415-030(1) is applicable for the purposes of the AOP and requested that it be considered inapplicable. The AEG presented historical information to support that request. Based on the rationale presented by the AEG, Ecology agreed that C&RE testing is an inapplicable requirement for the purposes of the AOP. The Air Quality Program issued Technical Policy 103 (attached) on December 04, 2003. Technical Policy 103 states that the requirement to conduct collection and removal efficiency (C&RE) testing in WAC 173-

415-030(1) is obsolete because it is superseded by the Maximum Achievable Control Technology (MACT) requirements for fluoride in 40 CFR 63.847.

C&RE testing was one means used by Ecology to monitor operation and maintenance (O&M) practices in aluminum smelter potrooms to demonstrate compliance with WAC 173-415-030(6)1. The decision to make the C&RE requirement inapplicable for the purposes of the AOP does not diminish Ecology's emphasis on demonstrating compliance with the O&M requirements in WAC 173-415-030(6). Practicing good O&M ensures that an aluminum smelter is conducting their potroom activities and maintaining their control equipment in a manner which results in maximum control efficiencies, minimized secondary fluoride emissions, and compliance with fluoride emission limits.

Ecology's Response: Proper operation and maintenance of the potroom air pollution control systems is best determined by direct continuous measurement of critical operating parameters. The requirements in Condition D26 of the AOP address monitoring of the critical operating parameters in the potrooms and provide a direct approach to conducting, optimizing, and monitoring O&M practices in the potrooms.

Ecology made the following changes to Condition D26: Ecology removed the requirement to conduct C&RE testing. Ecology added additional operating parameter monitoring requirements in Conditions D26.a, D26.b, D26.c, and D26.f. Except for a change in their order, the requirements in Conditions D26.d, D26.e, and D26.g are the same as in the original AOP. Condition D26.h was revised to make the language clearer. The language provided in "[]" below is not part of the respective condition, it is provided for explanatory purposes only.

Condition D26 requires Intalco to:

D26.a) Maintain sufficient draft in the pots to capture direct pot emissions. Intalco shall demonstrate compliance by meeting the parametric monitoring requirements in Condition D29.

[Intalco operates a continuous flow monitor on the inlet to each potline dry scrubber baghouse center. The data is averaged over ten minutes and the average stored automatically in a database. Computer programs monitor the data continuously to assure that flow remains above the threshold approved by EPA to represent adequate flow. In order to avoid exceedences of the parametric limits, Intalco has established an

1 WAC 173-415-030(6) Operation and maintenance. At all times, including periods of abnormal operation and upset, owners and operators shall, to the extent practicable, maintain an affected facility, and operate and maintain air pollution control equipment associated with such facility in a manner consistent with good air pollution control practice. A plant may elect to establish a program, subject to the approval of Ecology, for monitoring each potroom in order to demonstrate good operation and maintenance.

alarm system that alerts operators four hours before the limit is exceeded. The alarm system initiates both an auditory alarm, and an electronic page to the baghouse operators. All of this data is available to Ecology upon request. Intalco is required to initiate corrective action within one hour. In condition D29, Intalco is required to report the number of exceedences of the minimum flow parametric limit for each potline and provide the flow monitor records to Ecology upon request.]

D26.b) Maintain flow of fresh alumina into the inlet flow of each potline baghouse. Intalco shall demonstrate compliance by meeting the parametric monitoring requirements Condition D29.

[Alumina reacts with gas phase hydrofluoric acid (HF) in the pot gas stream to form a stable aluminum-fluoride compound. This reaction continues to occur as long sufficient numbers of reactive sites are present on the surface of the alumina. Maintaining sufficient flow of fresh alumina assures that adequate alumina surface area is available for reaction with HF. Intalco maintains a continuous monitor on the fresh alumina feed system on each potline dry scrubber baghouse center that senses whether or not fresh alumina is flowing. Ten minute intervals of the flow condition (e.g. Flow on, flow off) are summarized in a database. Computer programs monitor the data continuously to assure that fresh alumina flow is not off for a period approaching the maximum period of time approved by EPA. In order to avoid exceedences of the parametric limits, Intalco has established an alarm system that alerts operators one hour before the limit is exceeded. The alarm system initiates both an auditory alarm, and an electronic page to the baghouse operators. Intalco is required to initiate corrective action within one hour. In condition D29 Intalco is required to report the number of exceedences of the minimum flow parametric limit for each potline and provide the flow monitor records to Ecology upon request.]

D26.c) Maintain records of sight glass readings and make them available to Ecology upon request.

D26.d) Check flows on a minimum of four baghouse cells each month. During this process, Intalco shall readjust the damper position, remeasure the flow, and mark the correct damper position on the stack if the flow from a baghouse cell exceeds the established maximum flow rate for that cell. Intalco shall provide records of these inspections to Ecology upon request.

D26.e) Conduct weekly inspections to assure that only one hood at a time is open for anode change and tapping operations and that only two hoods are open in any 20 pot section during line breaks for all shifts and for all potlines. If Intalco observes that these practices are not being followed, Intalco shall take corrective action. Corrective action shall include, at a minimum, closing the extra open hoods immediately. Intalco shall provide records of these pot hood inspections to Ecology upon request.

D26.f) Maintain sufficient flow of recycle water to the wet roof scrubbers. Intalco shall demonstrate compliance by meeting the parametric monitoring requirements of Condition 29.

[The wet roof scrubbers provide a secondary means of air pollution control for the potrooms. The wet roof scrubbers draft potroom air through a water spray system that removes both gaseous and particulate fluoride from the air stream. The roof scrubbing system has an overall removal efficiency for fluoride of 80%

Approximately 25 of the scrubbers are located in each pot building. Each of the scrubbers has a reservoir of water that is pumped continuously into the spray section of the scrubber. Overflow water from the reservoir returns to the Primary Wastewater Treatment Plant where fluoride and solids are treated and settled. Treated and clarified water is recycled back to the roof scrubbers. If sufficient water is available in each reservoir to supply full flow to the spray system, and provide timely turnover of the reservoir contents, the roof scrubber system is considered to be operating properly. Maintaining sufficient recycle water volume is the key requirement to providing both reservoir volume and turnover. Intalco monitors the flow of recycle water continuously to each potline building. Water treatment plant operators monitor the flow regularly. If the total daily flow of recycle water to a potline reaches the minimum level approved by EPA to demonstrate proper operation, corrective action is initiated within one hour. Records of recycle water flow are available on request.]

D26.g) Comply with the functional integrity inspection requirements in Conditions D24 and D25.

D26.h) Conduct semi-annual "limited root cause analyses". These analyses consist of gathering Intalco staff (environmental manager, operator(s) with extensive knowledge of current potroom hood and wet scrubber conditions, potroom source testing staff, and staff who conduct the procedures which generate, manage, review, and report emissions data in the monthly air monitoring reports submitted to Ecology) to evaluate trends in the emissions data and to determine measures to minimize emissions. Intalco is required to submit a summary of the findings of the "limited root cause analysis" and any measures implemented to minimize emissions in the subsequent month's air monitoring report. Intalco is required to include a bar chart of "Potline Emissions" for each of the respective pollutants illustrating the contributions from dry and wet scrubbers for each operating potline for that month and the previous 24 months to illustrate trends in the emissions data.

ECOLOGY INTERNAL REVIEW COMMENTS

1. Revised language for Conditions D11 and D27:

The language in these conditions does not clearly explain where the source testing on the potline primary control devices is conducted, how often the source testing is done, how the averaging is done, or how the final number that is compared to the MACT TF limit is determined.

- a.) *Condition D11: " Intalco shall determine TF emissions and demonstrate compliance with the TF limits in Conditions D11 through D14 by source testing the potline A primary control system (8 Baghouse (B/H) cells per 12 month rolling period per potline (4 cells from 2 control devices)) and potlines B&C (8 B/H Cells per 12 month rolling period per potline (2 cells from each of 4 control devices)) using Alcoa Method 4075A and by sampling the secondary control system using Alcoa Method B-54a (three roof scrubbers simultaneously three times per month per potline). Intalco shall report the results of the source tests conducted in compliance with Conditions D11 and D12 (in a format that will allow comparison of the results to the respective emission limits) in the respective monthly air monitoring report submitted to Ecology. Intalco shall comply with Conditions D24, D25, and D26."*

Ecology's Response: Ecology revised the language in Condition D11 to read: "Intalco shall determine representative TF emissions from the potline primary control system by conducting a minimum of three pairs of source tests on each operating primary control system per year (40 CFR 63.847(b)(1)) using Alcoa Method 4075A. To meet this requirement Intalco shall conduct source tests on a minimum of 8 cells in each potline in a 12 month period (4 cells from each of the 2 CDs in Potline A and 2 cells from each of the 4 CDs in Potline B and in Potline C) [40 CFR 63.847(b)(7)]. Intalco shall calculate the total primary TF emissions from each potline by multiplying the average representative emissions per stack (determined by source testing) by the number of stacks per potline.

Intalco shall determine representative TF emissions from the potline secondary control system by conducting a minimum of three source tests simultaneously on three wet scrubbers per operating potline each month using Alcoa Method B-54a. Intalco shall determine the total secondary TF emissions by multiplying the average representative emissions per wet scrubber (determined by source testing) by the number of wet scrubbers per potline.

Intalco shall demonstrate compliance with the TF limits in Conditions D11 through D14 by summing the total TF emissions from the primary control systems and the total TF emissions from the secondary control systems of each potline and comparing the sum

to the respective limits. Intalco shall report the results of the source tests conducted in compliance with Conditions D11 and D12 (in a format that will allow comparison of the results to the respective emission limits) in the respective monthly air monitoring report submitted to Ecology. Intalco shall comply with Conditions D24, D25, and D26.

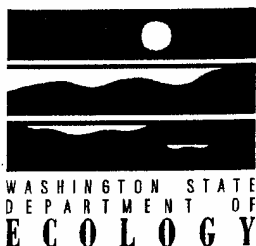
Intalco shall conduct initial and ongoing performance tests in accordance with the approved Air Monitoring Plan per Condition H15."

- b.) Condition D27: " For each operating potline, Intalco shall conduct source tests at the exhaust of the primary dry scrubber controls using EPA-approved alternative Alcoa Method 4075A-TF/4076-TF. Intalco shall conduct all source testing per the approved air monitoring plan per Condition H15. Intalco shall compute and record monthly average TF emission rate in lbs/ton Al produced (including all valid runs). Intalco shall determine compliance by averaging all valid source tests of potline primary control systems conducted less than one year before the compliance date for the reporting period, and all valid source tests conducted on the potline secondary control system collected during the compliance period. Intalco shall conduct initial and ongoing performance tests in accordance with the approved Air Monitoring Plan per Condition H15 and Subpart A of 40 CFR Part 63.847. Intalco shall comply with the monitoring, recordkeeping, and reporting requirements of Condition D11."


Ecology's Response: Ecology revised the language in Condition D 27 to read: "Intalco shall determine emissions of TF and demonstrate compliance with the 1.6 lb/ton of aluminum produced TF limit by complying with the monitoring, recordkeeping, and reporting requirements of Condition D11. Intalco shall determine compliance by averaging all valid source tests of potline primary control systems conducted less than one year before the compliance date for the reporting period, and all valid source tests conducted on the potline secondary control system collected during the compliance period (40 CFR 63.848(a))."

2. *Ecology changes to the Consolidated order and to the AOP made after the public comment period (ending December 2, 2003) and EPA's 45-day review (ending February 12, 2004):*

The attachment titled "Ecology Changes to the Consolidated Order and to the AOP Made After the Public Comment Period (ending December 2, 2003) and EPA's 45-day Review (ending February 12, 2004)" discusses the changes that Ecology made to the CO and the AOP and the reasons for making those changes.



AIR QUALITY PROGRAM
TECHNICAL POLICY 103
Applicable Requirements At Aluminum Smelters

References: Chapter 70.94 RCW, Chapter 173-401 WAC, and Chapter 173-415 WAC	Effective Date: December 2003
Revised: <u>12/04/03</u>	Approved By  Mary Burg Air Quality Program Manager

PURPOSE:

This policy is intended to provide guidance to Ecology staff, the regulated community, and other interested persons in the implementation of WAC 173-415-030(1)(b). Specifically, this policy is to be used when writing Air Operating Permits at aluminum smelters.

APPLICATION:

This policy supersedes any other Ecology guidance written prior to its effective date dealing with the collection and treatment efficiency requirement found in WAC 173-415-030(1)

1. WAC 173-415-030(1)(b) IS NOT AN APPLICABLE REQUIREMENT FOR THE PURPOSES OF AN AIR OPERATING PERMIT.

It is the policy of the Air Quality Program that the requirement found in WAC 173-415-030(1)(b) is obsolete for existing potlines at the aluminum smelters in Washington. For the purposes of the aluminum air operating permits, this portion of the regulation is an inapplicable requirement. The reason for the inapplicable designation is that the state requirement is obsolete because it is superseded by the MACT requirements for fluoride in 40 CFR 63.847.

2. WAC 173-415-030(6) and WAC 173-415-060 ARE APPLICABLE REQUIREMENTS FOR THE PURPOSES OF AN AIR OPERATING PERMIT.

WAC 173-415-030(6), which requires each smelter to “operate and maintain (the) air pollution control equipment associated with (the) facility in a manner consistent with good air pollution control practice” is an applicable requirement in the Air Operating Permit. This section of the rule and the provisions of WAC 173-401-615

and WAC 173-401-630 allow for the inclusion of conditions in the Air Operating Permit to demonstrate continuous compliance with the operation and maintenance (O&M) requirements. Collection and removal efficiency monitoring may be an appropriate tool to ensure ongoing demonstrations of good O&M.

WAC 173-415-060, which requires monitoring of emissions, ambient air and forage, is also an applicable requirement. These sampling programs are to be included in the permittee’s Air Operating Permit.

**ECOLOGY CHANGES TO THE CONSOLIDATED ORDER AND TO THE
AOP MADE AFTER THE PUBLIC COMMENT PERIOD (ENDING
DECEMBER 2, 2003) AND EPA'S 45-DAY REVIEW (ENDING
FEBRUARY 12, 2004)**

CHANGES TO INTALCO'S CO:

- 1) **Condition A2.b:** Ecology added "Intalco shall comply with Condition A2.c." to the condition. Condition A2.c describes the corrective action that must be taken if visible emissions are observed.
- 2) **Condition A4 of the CO:** Ecology added this condition to match the reporting requirements in Condition H14 of the AOP. Ecology also added language requiring compliance with Condition A4 to Conditions B1, B3, C1, C3, C4, C6, C9-C12, D4, D6, D8, E1-E3 of this order.
- 3) **Condition B3 of the CO for the PFTS:** Intalco has chosen to accept the 0.54 lb/hour POM limit (the first option given in the CO for determining a POM limit) therefore the second option was deleted from Condition B3 of the CO. Ecology also added language allowing Intalco to reduce the POM monitoring frequency from once every two years to once every five years if specific conditions are met.
- 4) **Condition C2 of the CO:** Added the symbol "≤" before 720 potdays.
- 5) **Conditions C6, C7, C10, C11, C14, C17, and C19:** These conditions were deleted from the CO and from the AOP because Intalco reports the emission rates for the respective pollutants in the monthly air monitoring reports. Because seven conditions were deleted, the numbering sequence of the conditions changed from "C1-C26" to "C1-C15". All references to the condition numbers were changed accordingly.
- 6) **Condition C13 (was C20) of the CO:** Ecology corrected the spelling of "site" to "sight".
- 7) **Condition C14 (was C21) of the CO:** Ecology corrected the MACT citations in "visible emissions (per 40 CFR 63.8 MACT), and if processing adequate volumes of water and air (per Condition 40 CFR 60.848(f)(5)(ii) (Primary Aluminum MACT))." to "visible emissions (per 40 CFR 63.848(g) Primary Aluminum MACT), and if processing adequate volumes of water and air (per Condition 40 CFR 60.848(f)(5)(Primary Aluminum MACT))."
- 8) **Condition C15 (was C22) of the CO:** Ecology revised the original language to match the requirements for potroom O&M in Condition D19 of the AOP.
- 11) **Condition D6 of the CO:** Ecology added "or another EPA approved method" to "Intalco shall conduct source tests upon Ecology's request using EPA RM 5 per 40 CFR 60, Appendix A, during dross truck loading." to match the MRR requirements in Condition E19 of Intalco's AOP.
- 12) **Condition D8 of the CO:** The language in this condition was incorrect. Ecology replaced the incorrect language with the correct requirement: "Intalco shall conduct an annual source test on the furnace during full operation using EPA RM 7E for NOx and RM 3A for Oxygen as per 40 CFR Part 60, Appendix A, or another EPA approved

method. Intalco shall comply with Condition E27 and H14”. Ecology also added language allowing Intalco to reduce POM monitoring frequency from once every year years to once every five years if specific conditions are met.

CHANGES TO INTALCO’S AOP:

- 1) Ecology added the requirement to comply with the reporting requirements in Condition H14 (Monthly Air Monitoring Report) to every condition that has a limit.
- 2) **Condition A14 for the PFTS:** Intalco has chosen to accept the 0.54 lb/hour POM limit (the first option given in the CO for determining a POM limit) therefore the second option was deleted from Condition B3 of the CO. Ecology also added language allowing Intalco to reduce POM monitoring frequency from once every two years to once every five years if specific conditions are met.
- 3) **Condition B1 for the Bake Oven Baghouse:** Ecology deleted the requirement to comply with the notification requirements in Conditions D8 and D9 because Ecology considers the reporting required in Condition H14 sufficient to demonstrate compliance with the limits.
- 4) **Condition B2 for the Bake Oven Baghouse:** Ecology deleted the requirement to comply with the notification requirements in Conditions D13 and D14 because Ecology considers the reporting required in Condition H14 sufficient to demonstrate compliance with the limits.
- 5) **Condition D2 for the Potlines:** Ecology added the symbol “≤” before 720 potdays
- 6) **Condition D6, D7, and D9 of the AOP for the Potlines:** Ecology changed “B-54a” to “B-54b”.
- 7) **Conditions D8, D9, D13, D14, D18, D21, and D23 for the Potlines:** These conditions were deleted from the AOP because Intalco reports the emission rates for the respective pollutants in the monthly air monitoring reports. Ecology considers the reporting required in Condition H14 sufficient to demonstrate compliance with the limits. The numbering sequence of the conditions was changed from “D1-D26” to “D1-D19” and any references to other condition numbers were changed accordingly.
- 8) **Conditions E5 through E15 for the Remelt Furnace:** Ecology rescinded Order DE03AQIS-5671 and replaced it with Order DE04AQIS-1070 (issued on April 14, 2004). The Support Document provides a discussion of the requirements for each of these conditions.
- 9) **Condition E20:** Ecology revised the language to match the language in Intalco’s CO.
- 10) **Condition E22:** The language in this condition was incorrect. Ecology replaced the incorrect language with the correct language in Condition D2 and A2.b of the CO: “Intalco shall conduct source tests upon Ecology’s request using EPA RM 22 per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with Conditions H1 and E22”.
- 11) **Condition E24:** Ecology added the specific emission factor that will be used to calculate PM emissions.
- 12) **Condition E27:** The language in this condition was incorrect. Ecology replaced the incorrect language with the correct requirement: “Intalco shall conduct an annual source

test on the furnace during full operation using EPA RM 7E for NO_x and RM 3A for Oxygen as per 40 CFR Part 60, Appendix A, or another EPA approved method. Intalco shall comply with Condition E27 and H14. Intalco can reduce the frequency of source testing to once every 5 years if condition H6 is met.”

13) Condition E29: Ecology changed the language from “Intalco shall comply with Conditions H1, H2.g and E30.” to “Intalco shall conduct a source test upon Ecology’s request using EPA RM 5 per 40 CFR 60, Appendix A, or another EPA approved method. Intalco shall comply with Conditions H1, E30, and H14.” in the MRR column. Ecology changed the language from “See Condition H2.g” to “DE 02AQIS-3967” in the Basis of Authority column.

14) Conditions E32-E55 (Secondary MACT conditions): The conditions were reorganized to make them easier to understand. The content of the requirements was not changed. Conditions E37 and E38 were deleted because they are not applicable. Intalco has chosen to demonstrate compliance on each emission unit rather than demonstrating compliance on a Secondary Aluminum Processing Unit (SAPU).

15) Condition H14: Ecology changed the language in this condition from “The format shall include a table which summarizes the required source tests and the dates when they were completed.” to “The format shall include a table which summarizes the required source tests conducted during that month and the dates when they were completed. Intalco shall submit the results of source tests to Ecology in the air monitoring report in the month that the results are received by Intalco.”.